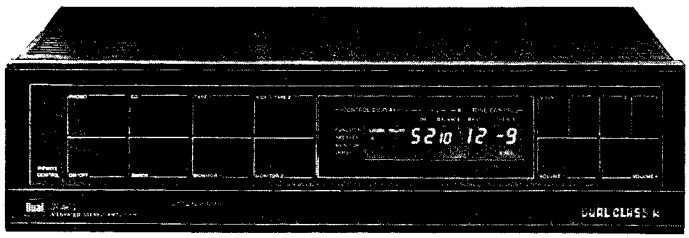
Dual

NEW TECH



CV 440

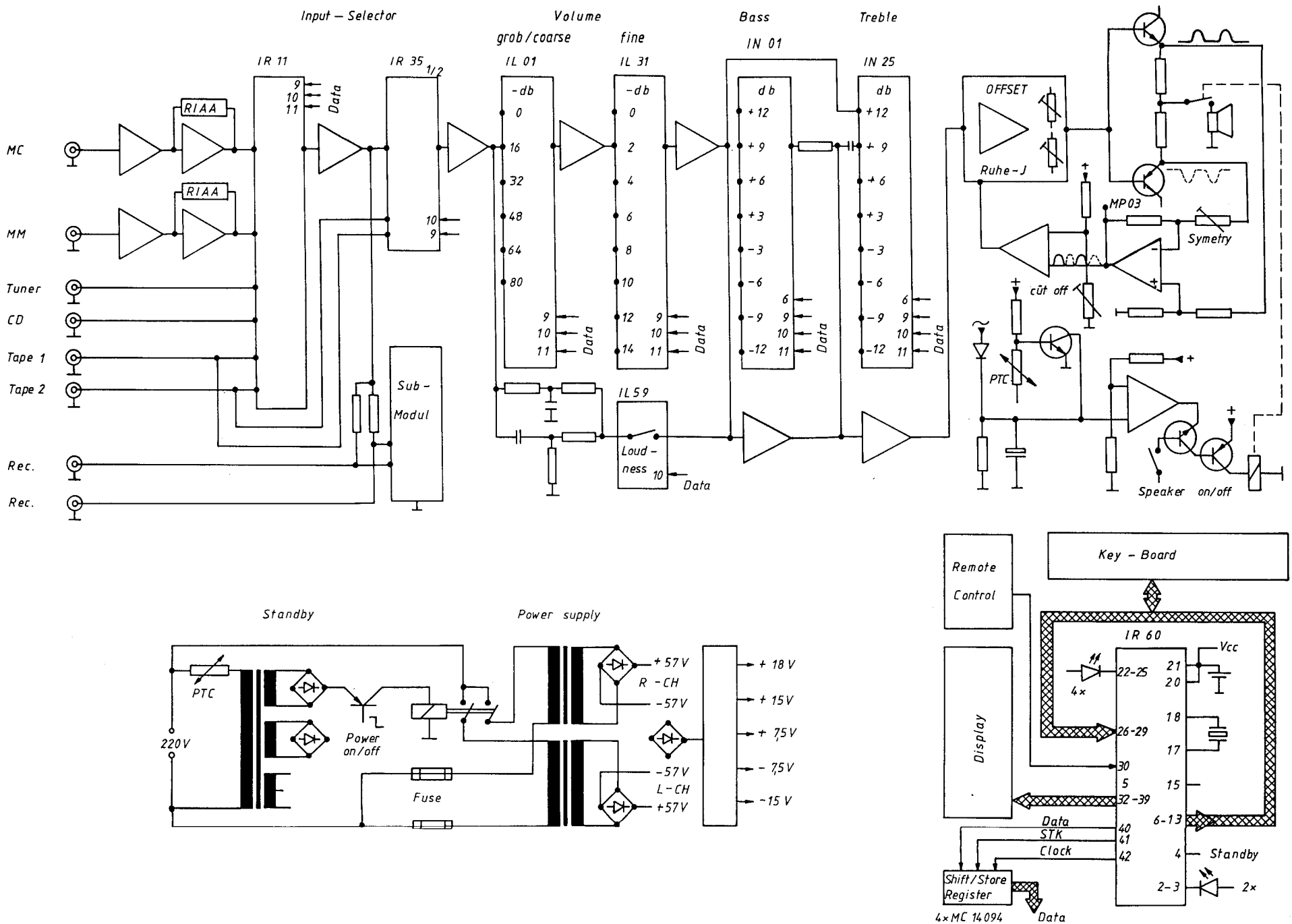
Service-Anleitung
Service Manual
Instructions de Service

Technische Daten (typische Werte)	Technical Data (typical value)	Caractéristiques techniques (valeur caractéristiques)	
Ausgangsleistung (DIN) Musikleistung Sinus-Dauertonleistung	**Rated output (DIN)** Music power Rms continuous power output	**Puissance de sortie (DIN)** Puissance musicale Puissance efficace	**8 Ω** **4 Ω** 2×185 W 2×200 W 2×145 W 2×200 W
Klirrfaktor (bei Nennleistung – 6 dB) 20 Hz 1 kHz 20 kHz	**Harmonic distorsion** (continuous power – 6 dB) 20 Hz 1 kHz 20 kHz	**Taux de distorsion** (puissance efficace – 6 dB) 20 Hz 1 kHz 20 kHz	 0,003 % 0,003 % 0,006 %
Leistungsbandbreite (DIN 45500)	**Power band width (DIN 45500)**	**Bande passante (DIN 45500)**	5 Hz–100 kHz
Übertragungsbereich 1 Watt–3 dB Tuner, CD, Tape, Video Phono MM/MC	**Frequency response** 1 Watt–3 dB Tuner, CD, Tape, Video Phono MM/MC	**Bande passante** 1 Watt–3 dB Tuner, CD, Tape, Video Phono MM/MC	 3 Hz–270 kHz 10 Hz– 50 kHz
Eingänge Tuner, CD, Tape 1, Tape 2/Video Phono MM Phono MC	**Inputs** Tuner, CD, Tape 1, Tape 2/Video Phono MM Phono MC	**Entrées** Tuner, CD, Tape 1, Tape 2/Video Phono MM Phono MC	 280 mV/47 kΩ 3 mV/47 kΩ 250 µV/ 5 kΩ
Ausgänge Druckklemmen für zwei Lautsprecherpaare, Ausgang 1 und Ausgang 2 schaltbar 1-Koaxialbuchse 1/4 inch für Kopfhörer 1-Line-Ausgang an Tape 1 1-Line-Ausgang an Tape 2/Video	**Outputs** Press-type terminal strips for two sets of speakers, output 1 and output 2 switched 1 coaxial jack 1/4 inch for headphone 1 Line output to Tape 1 1 Line output to Tape 2/Video	**Sorties** Barres a ressort pour deux paires de hauts-parleurs, sortie 1 et sortie 2 commutables 1 prise coaxiale de 1/4 inch le raccordement du casque-écouter 1 sortie Line sur la price Tape 1 1 sortie Line sur la price Tape 2/Video	 8–16 Ohm 8–2000 Ohm 280 mV/2,5 kΩ 280 mV/2,5 kΩ
Fremdspannungsabstand (DIN 45500) bezogen auf Nennleistung Tuner, CD, Tape 1, Tape 2/Video Phono MM Phono MC bezogen auf 2×50 mW Tuner, CD, Tape 1, Tape 2, Monitor Phono MM Phono MC	**Signal-to-Noise ratio (DIN 45500)** related to nominal output Tuner, CD, Tape 1, Tape 2/Video Phono MM Phono MC related to 2×50 mW Tuner, CD, Tape 1, Tape 2, Monitor Phono MM Phono MC	**Rapport/signal bruit (DIN 45500)** rapporté à la nominale Tuner, CD, Tape 1, Tape 2/Video Phono MM Phono MC rapporté à 2×50 mW Tuner, CD, Tape 1, Tape 2, Monitor Phono MM Phono MC	 100 dB 75 dB 62 dB 70 dB 68 dB 62 dB
Geräuschspannung Tuner, CD, Tape 1, Tape 2/Video Phono MM Phono MC	**Noise voltage** Tuner, CD, Tape 1, Tape 2/Video Phono MM Phono MC	**Tension perturbatrice** Tuner, CD, Tape 1, Tape 2/Video Phono MM Phono MC	 103 dB 80 dB 70 dB
Übersprechdämpfung bei 1000 Hz zwischen den Kanälen zwischen den Eingängen	**Cross-talk attenuation** at 1.000 Hz between the channels between the inputs	**Rapport de diaphonie** à 1000 Hz entre les canaux entre les entrées	 75 dB 75 dB
Dämpfungsfaktor (8 Ohm)	**Damping factor** (8 ohms)	**Facteur d'amortissement** (8 ohms)	2 kHz/180 20 kHz/160
Regelbereiche Volume (2 dB-Schritte) Pre Volume (2 dB-Schritte) Balance (2 dB-Schritte) Höhen (3 dB-Schritte) Bässe (3 dB-Schritte)	**Control range** Volume (2 dB steps) Pre Volume (2 dB steps) Balance (2 dB steps) Treble (3 dB steps) Bass (3 dB steps)	**Plage de réglage** Volume (pas de 2 dB) Pre Volume (pas de 2 dB) Balance (pas de 2 dB) Treble (pas de 3 dB) Bass (pas de 3 dB)	 80 dB 20 dB 18 dB ± 12 dB ± 12 dB
Leistungsaufnahme Standby-Betrieb Nennleistung an 8 Ω	**Power consumption** Standby nominal power (8 Ω)	**Consommation de puissance** à vide puissance nominale (8 Ω)	 ca. 5 W ca. 480 W
Netzspannungen	**Line voltages**	**Tensions secteur**	230 V

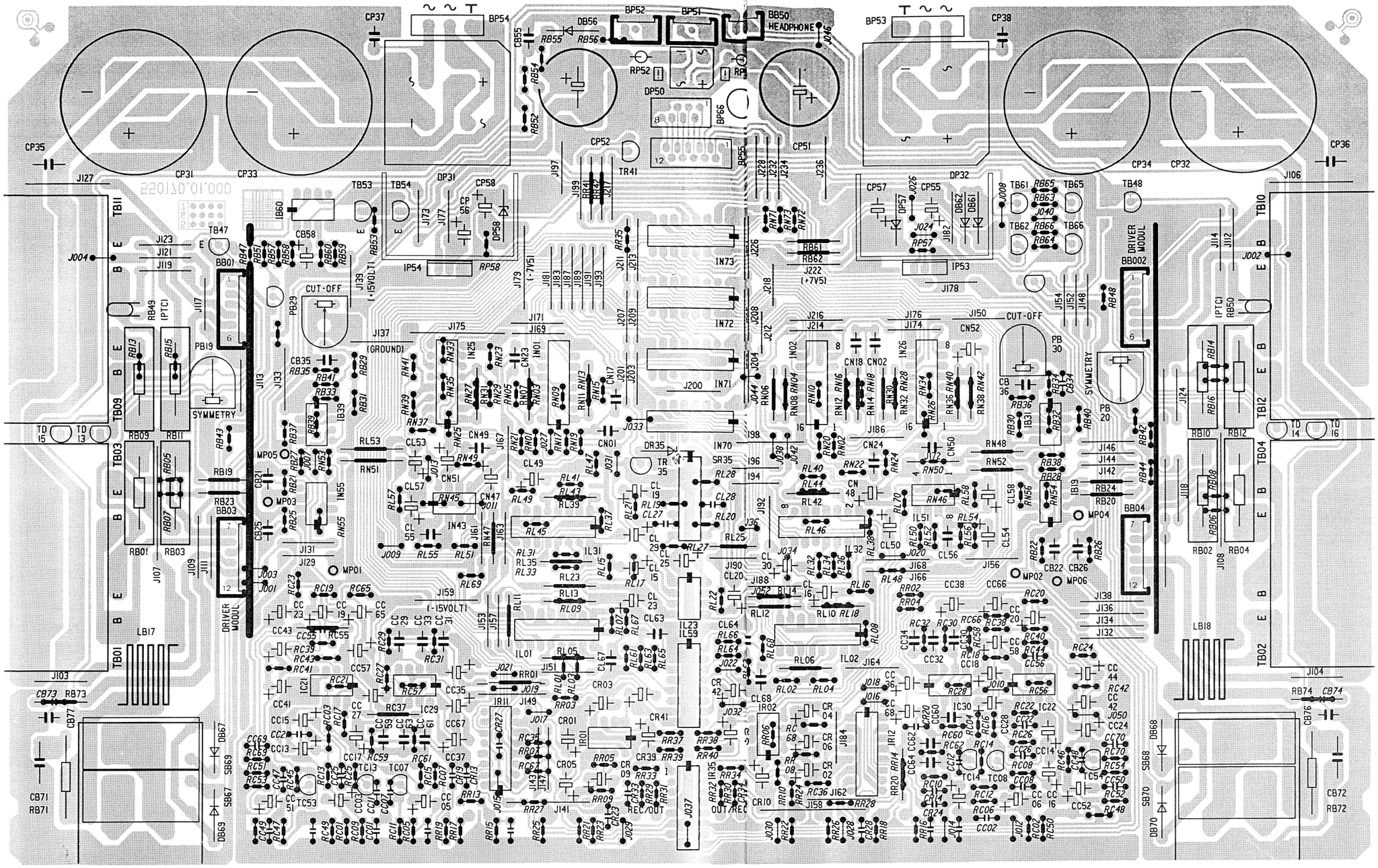
Dual GmbH · Postfach 1144 · 7742 St. Georgen/Schwarzwald

921526 0886

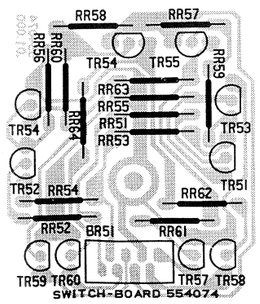
Copyright by Dual

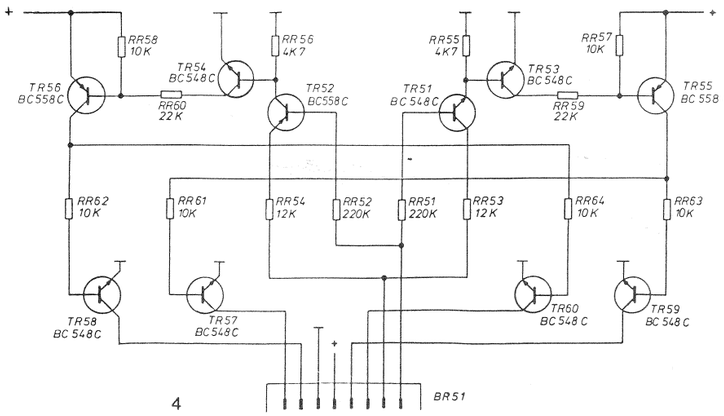

Input – Selector
Volume
grob/coarse
fine
Bass
Treble
IN 01
IN 25
IR 11
IR 35 1/2
IL 01
IL 31
IL 59
MC
MM
Tuner
CD
Tape 1
Tape 2
Rec.
Rec.
RIAA
RIAA
Data
Sub-
Modul
Loud-
ness
OFFSET
Ruhe-J
MP03
Symetry
cût off
PTC
Speaker on/off
Standby
Power supply
PTC
220V
Power
on/off
Fuse
+57V
R-CH
-57V
-57V
L-CH
+57V
+18V
+15V
+7,5V
-7,5V
-15V
Remote
Control
Key – Board
IR 60
Vcc
4x
22-25
26-29
30
5
32-39
40
41
42
4
2-3
2x
Display
Data
STK
Clock
Shift/Store
Register
4x MC 14094
Data
Standby

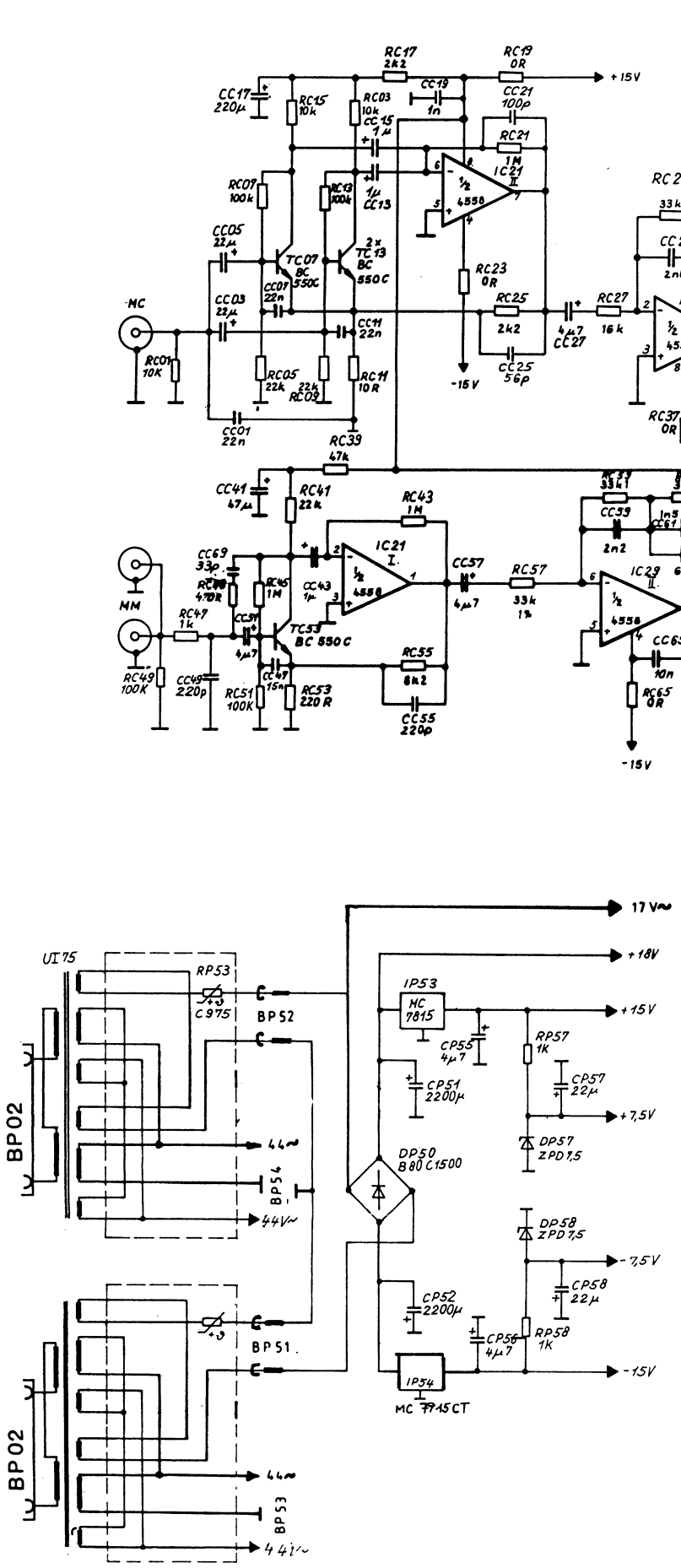
Grundplatte / Main board / Platine principale

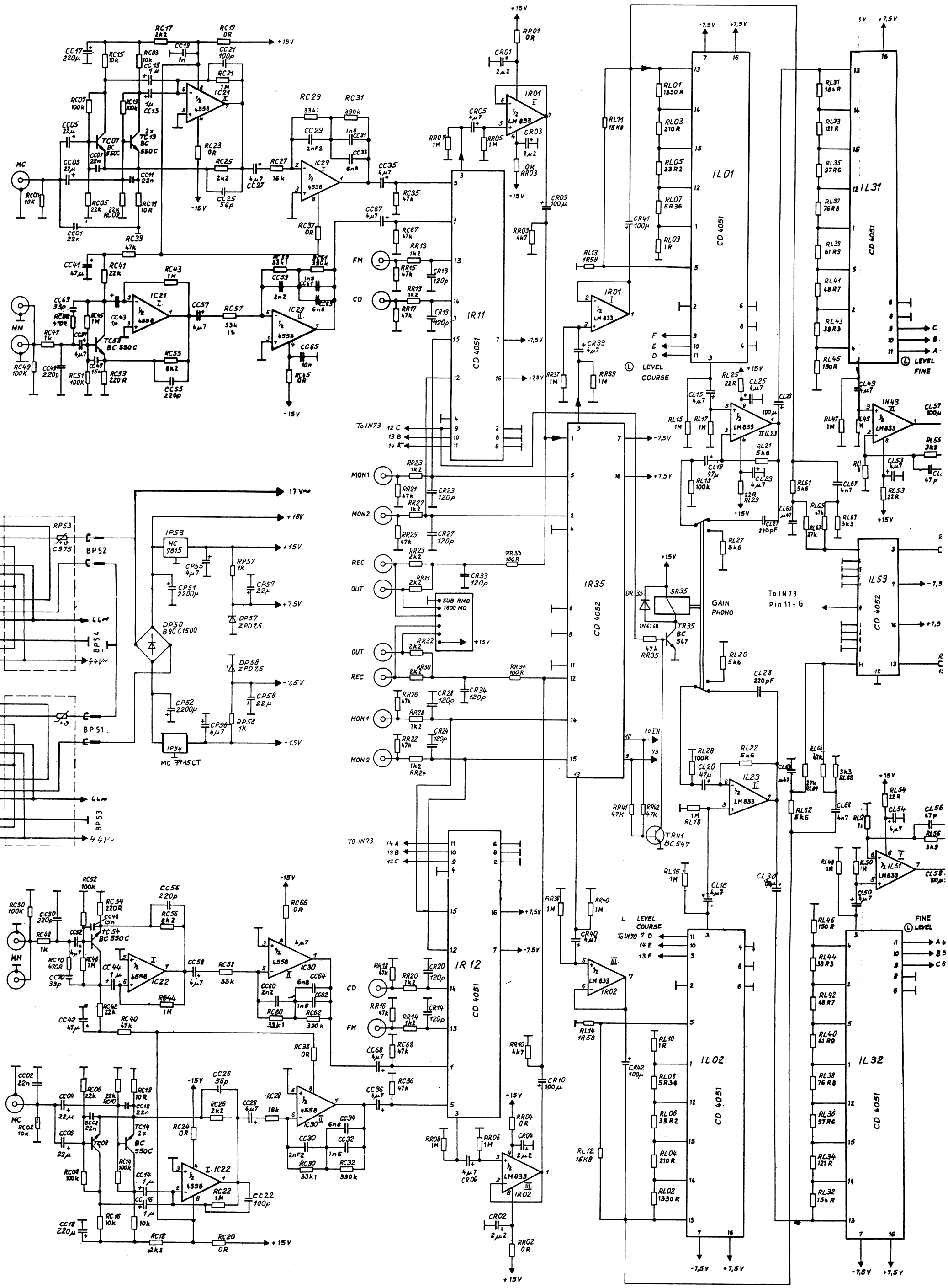


SUB RMB 1600 MD






UI 75
RP53
BP52
BP54
BP51
BP53
BP02
BP02
44V~
44V~
44V~
IP53
MC 7815
IP54
MC 7915 CT
DP50 B80 C1500
DP57 ZPD 7,5
DP58 ZPD 7,5
17 V~
+18V
+15V
+7,5V
-7,5V
-15V


IR 35
IR 11
IR 12
CD 4051
CD 4052
IL 01
IL 31
IL 59
IL 02
IL 32
IL 23
IR 01
IR 02
IN 43
IL 51
LM 833
4558
IC 21
IC 22
IC 29
IC 30
MM
MC
FM
CD
MON 1
MON 2
REC
OUT
SUB RMB 1600 MD
TC 07 BC 550C
2x TC 13 BC 550C
TC 53 BC 550C
TC 54 BC 550C
TC 14 2x BC 550C
TR 35 BC 547
TR 41 BC 547
SR 35
1N4148
GAIN PHONO
LEVEL COURSE
LEVEL FINE
To IN 73
To IN 70
To IN
+15V
-15V
+7,5V
-7,5V

DRIVER

+57V

- 57V

+15V

-15V

+18V

1,5V

+7,5V

-7,5V

17V~

44V~

IL31 CD 4051

IL32 CD 4051

IL59 CD 4052

IN01 CD 4051

IN02 CD 4051

IN25 CD 4051

IN26 CD 4051

LEVEL FINE

BASS

TREBLE

To IN71

To IN72

To IN73

Basis TD 13

Emitter TD 16

Collector TD 14/16

cut off

SYMETRY

2x BDV 67 D

2x BDV 66 D

2x BC 547 B

BC 547 B TB62

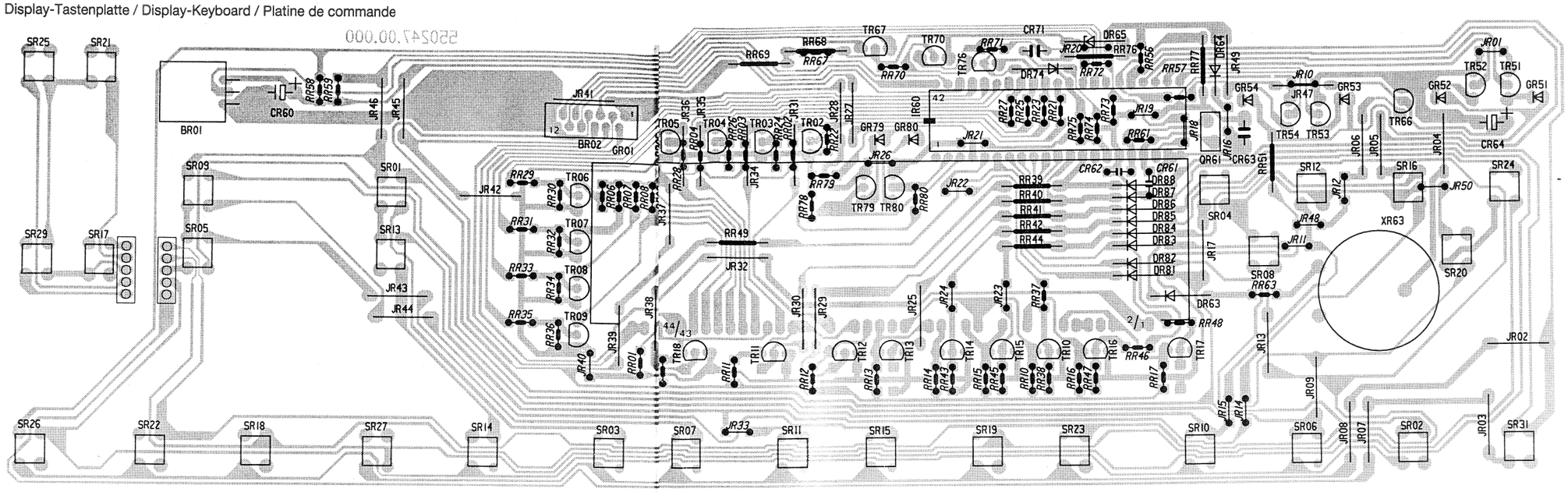
DP31 B120 C6000

DP32 B120 C6000

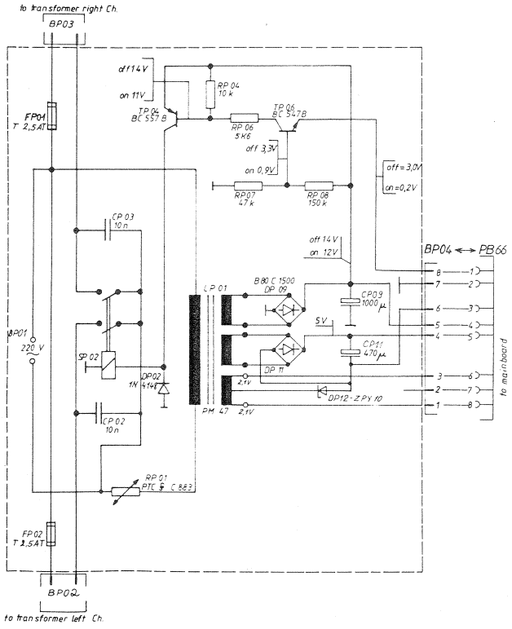
BP 53

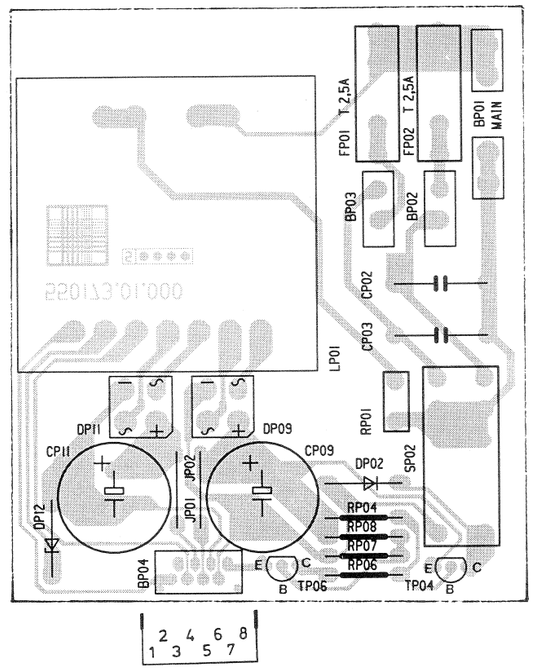
MP04

Display-Tastenplatte / Display-Keyboard / Platine de commande

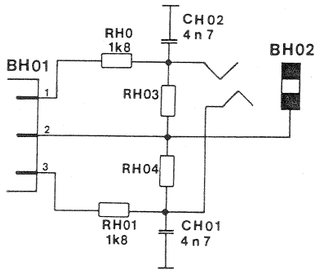


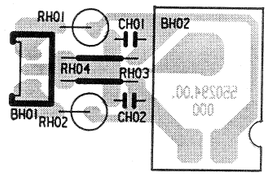
Stand by-platte / Stand by board / Platine de secteur

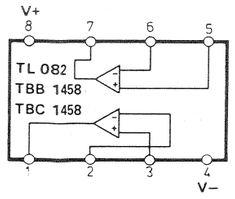




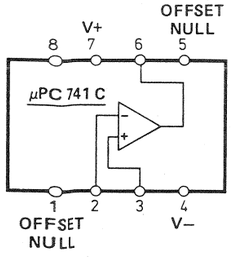
Kopfhörerplatte / Head phone board /
Platine de phones





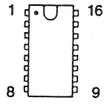


LM 393
LM 833
RC 4558

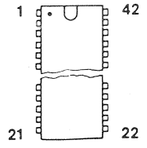


MC 1741

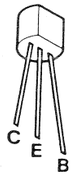
LM 393
LM 833
RC 4558



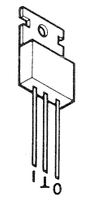
MC 14051
MC 14052



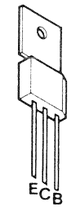
HD 44840



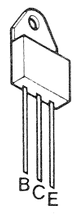
BC 327 BC 550
BC 328 BC 557
BC 338 BC 558
BC 546 BF 423
BC 547 BF 869
BC 548 BF 870



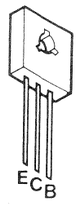
MC 7815



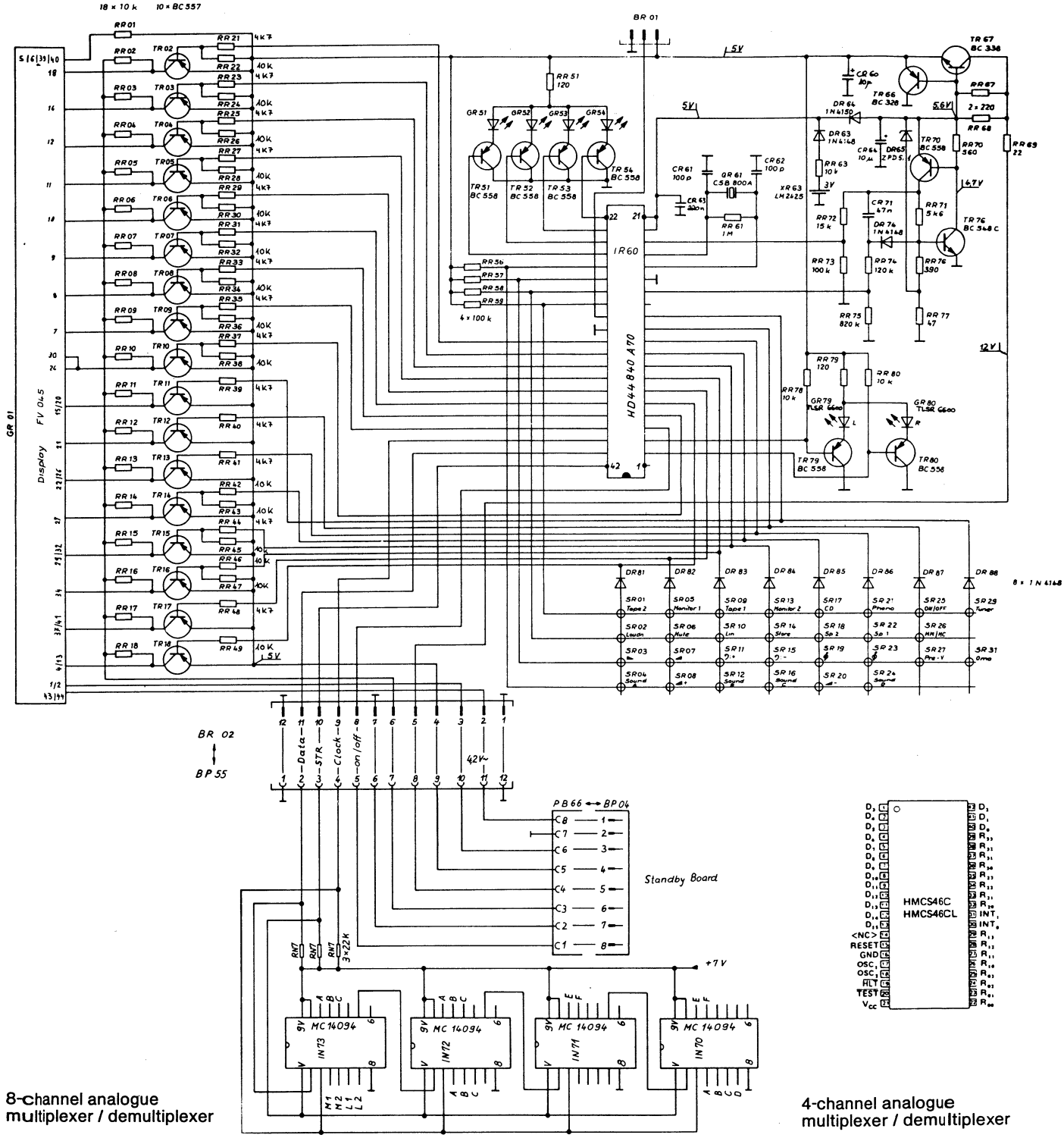
BF 869
BF 870



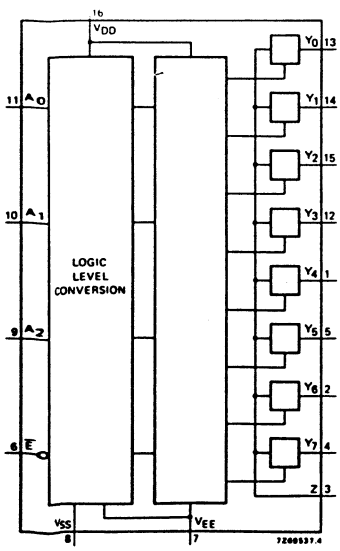
BDV 66 D
BDV 67 D



MJE 340
MJE 350



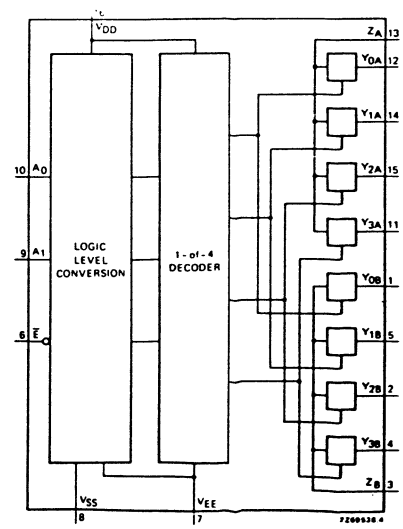
8-channel analogue multiplexer / demultiplexer



MC 14051

Input Pin			Input Channel Pin
9	10	11	
L	L	L	13
L	L	H	14
L	H	L	15
L	H	H	12
H	L	L	1
H	L	H	5
H	H	L	2
H	H	H	4

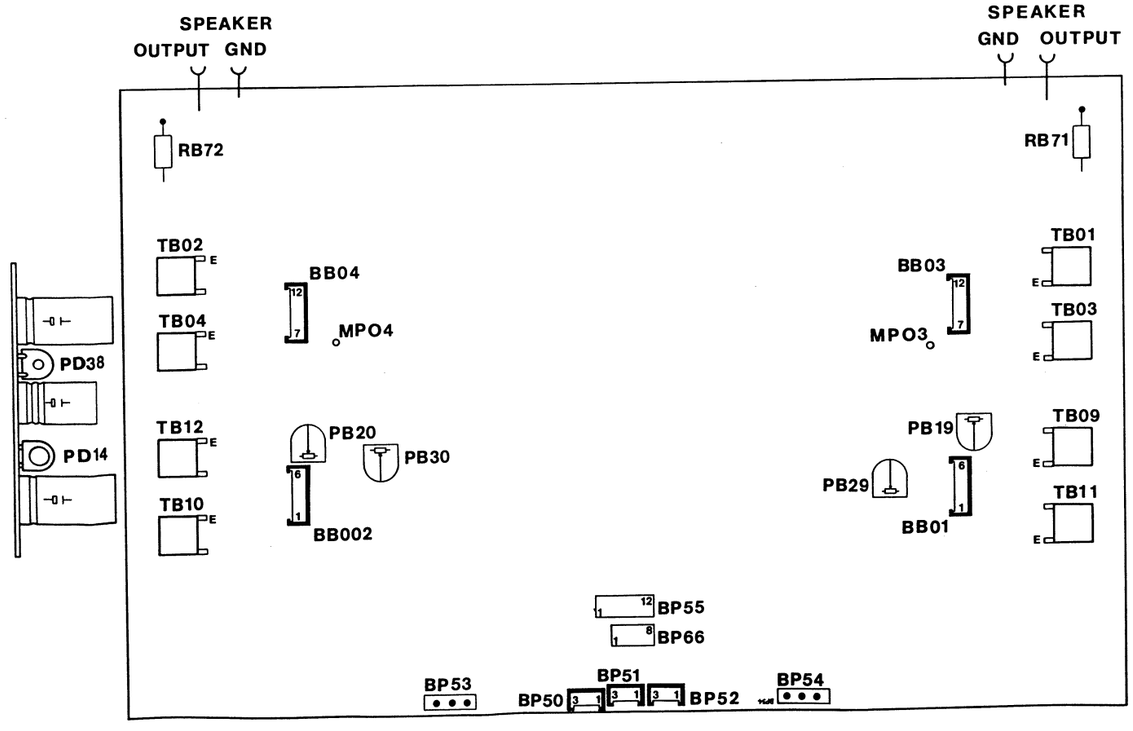
4-channel analogue multiplexer / demultiplexer



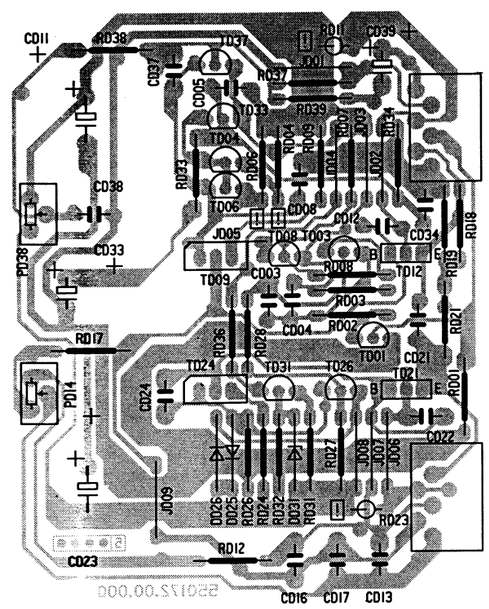
MC 14052

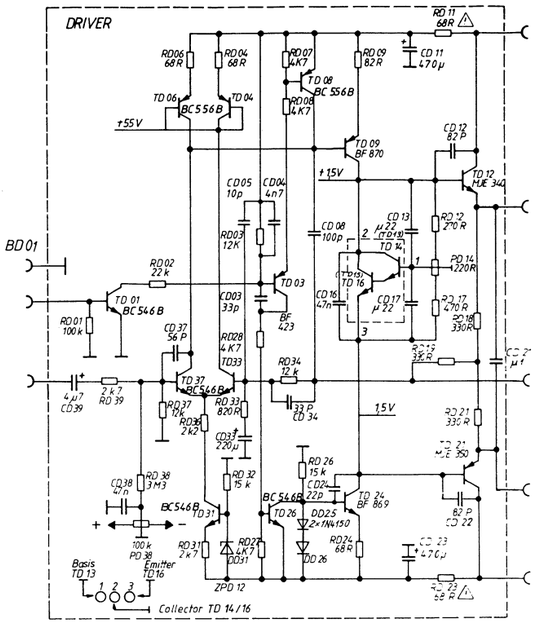
Abgleichanleitung CV 440 · Alignment Instruction CV 440

Signalquelle Signal source	Einstellung Signalquelle Signal source adjustment	Einstellung Gerät Unit adjustment	Anzeigegerät Anschluß Indicator connection	Abgleichposition Adjustment position	Abgleich, Bemerkung Alignment, Remarks
Ruhestrom · Quiescent Current					
		Power: On Tuner: On Volume: Minimum oder/or Muting on – ohne Last-R – without load-R – kalter Zustand – cold-state	DC-Voltmeter an/to RB 71 Emitter: ↕ TB 01 + TB 09 ↕ TB 03 + TB 11	PD 14 rechter Kanal (R-CH) right channel (R-CH)	15 mV 15 mV + 15 mV = 30 mV (Differenz ± 50 % – zwischen den - Transistoren – between transistors)
			RB 72 Emitter: ↕ TB 02 + TB 10 ↕ TB 04 + TB 12	PD 14 linker Kanal (L-CH) left channel (L-CH)	
Offset					
		Power: On Tuner: On Volume: Minimum	DC-Voltmeter an/to Speaker output	PD 38 (L-CH) PD 38 (R-CH)	0 mV (± 5 mV)
Symmetrie und Strombegrenzung · Symmetry and Current Limeting					
NF/AF-Generator an/to Tuner	1 kHz ca. 300 mV	Power: On Tuner: On Volume: Maximum Speaker: 8 Ohm Lastwiderstand Load-resistor	Oscilloscope an/to: MP 03 (R-CH) MP 04 (L-CH) Speaker GND	PB 19 (R-CH) PB 20 (L-CH)	– auf gleich hohe Sinushalbwelle, – to same sinus- halfwave – (doppelte Frequenz) – (double frequency)
	0–200 mV	Speaker: 2 Ohm/100 W Lastwiderstand Load-resistor Kalter Zustand Cold-state	NF/AF-Voltmeter to Speaker output	PB 29 (R-CH) PB 30 (L-CH)	16 V – Strombegrenzung – gerade noch nicht abgeschaltet, – current limeting – just not switches off



Treiberplatte / Driver board / Platine de driver





Prozessor HD 44840 A 70 (IR 60)· Pinbelegung · Pin arrangement

Pin	Signal	
1		No connection
2 →	⌊	Balance L-CH
3 →	⌊	Balance R-CH
4 →	⌊	ON = H, OFF = L
5 →	⊔	TR 10 Display
6 →	⊔	Pulse Dekade 1
7 →	⊔	Pulse Dekade 2
8 →	⊔	Pulse Dekade 3
9 →	⊔	Pulse Dekade 4
10 →	⊔	Pulse Dekade 5
11 →	⊔	Pulse Dekade 6
12 →	⊔	Pulse Dekade 7
13 →	⊔	Pulse Dekade 8
14	⊔	No connection
15 ←	⌈	Reset
16		GND
17		Quarz
18		Quarz
19 ←		HTL 5 V
20	+ 5 V	V_{cc}
21	+ 5 V	V_{cc}
22 →	⌊	TR 54 Sound 1
23 →	⌊	TR 53 Sound 2
24 →	⌊	TR 52 Sound 3
25 →	⌊	TR 51 Sound 4
26 ←	⊔	Volume ±, Sound 1, 2, 3, 4
27 ←	⊔	Balance L/R-CH, Bass ±, Treble ±, Pre-Volume
28 ←	⊔	Loudn., Mute, Lin, Store, Sp. 2, Sp. 1, MM/MC
29 ←	⊔	Tape 2, Monitor 1, Tape 1, Monitor 2, CD, Phono, ON/OFF, Tuner
30 ←		Remote Control
31		GND
32 →	⊔	TR 02
33 →	⊔	TR 03
34 →	⊔	TR 04
35 →	⊔	TR 05
36 →	⊔	TR 06
37 →	⊔	TR 07
38 →	⊔	TR 08
39 →	⊔	TR 09
40 →		Clock = Pin 3
41 →		Data = Pin 2
42 →		STR = Pin 1

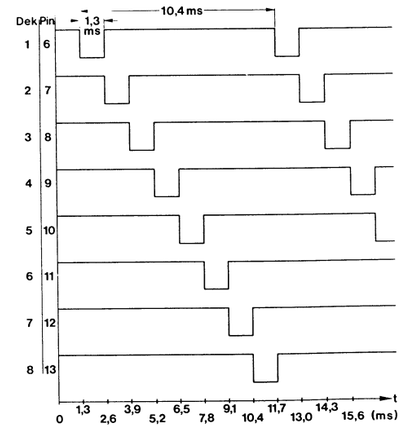
Display

IN 73
MC 14094

Bezeichnung · Signification:

2 ←	Input
7 →	Output
⌈	Signal HIGH active
⌊	Signal LOW active

Pulse Diagram



Ersatzteile · Replacement parts · Pièces détachées CV 440

Pos.	Art.-Nr.	Stck	Bezeichnung
1	280960	1	Frontblende
2	279478	1	Fenster
3	279481	1	Blende
5	279480	1	Feder
6	280852	1	Riegel
7	279482	6	Knopf
8	279483	9	Knopf
9	280963	1	Klappe
10	279486	1	Feder
11	279896	4	Fuss kpl.
12	279489	1	Gehäuseblech
13	279474	1	Rückwand
14	279472	2	Netztrafo
15	279476	1	Netzbuchse
BH 2	279479	1	Kopfhörerbuchse

Pos.	Art.-Nr.	Stck	Bezeichnung
30	279475	1	**Grundplatte**
31	279510	5	Cinch-Buchsenleiste
32	279511	2	Anschlußklemme
CP 31	279495	4	Elyt-Kondensator 10 MY/63 V
bis			
CP 34	279495	4	Elyt-Kondensator 10 MY/63 V
DB 56	223906	5	Diode 1 N 4148
DB 61	279496	2	Diode ZPD 5V1
DB 62	279496	2	Diode ZPD 5V1
DB 67	223906	5	Diode 1 N 4148
bis			
DB 70	223906	5	Diode 1 N 4148
DP 21	279497	1	Gleichrichter B 80 C 1500
DB 23	279498	2	Diode ZPD 7V5
DP 27	279498	2	Diode ZPD 7V5
DP 31	279499	2	Gleichrichter D5 FB 20
DP 32	279499	2	Gleichrichter D5 FB 20
DP 50	279497	1	Gleichrichter B 80 C 1500
DP 57	279498	4	Diode ZPD 7V5
DP 58	279498	4	Diode ZPD 7V5
DR 35	223906	6	Diode 1 N 4148
IB 19	279500	7	IC LM 833
IB 31	268409	2	IC LM 393 P
IB 39	268409	2	IC LM 393 P
IB 60	279501	1	IC MC 1741 CP 1
IC 21	236299	4	IC RC 4558 D
IC 22	236299	4	IC RC 4558 D
IC 29	236299	4	IC RC 4558 D
IC 30	236299	4	IC RC 4558 D
IL 1	279502	8	IC MC 14051 BCP
IL 2	279502	8	IC MC 14051 BCP
IL 23	279500	7	IC LM 833
IL 31	279502	8	IC MC 14051 BCP
IL 32	279502	8	IC MC 14051 BCP
IL 51	279500	7	IC LM 833
IL 59	279503	2	IC MC 14052 BCP
IN 1	279502	10	IC MC 14051 BCP
IN 2	279502	10	IC MC 14051 BCP
IN 25	279502	10	IC MC 14051 BCP
IN 26	279502	10	IC MC 14051 BCP
IN 43	279500	7	IC LM 833
IN 55	279500	7	IC LM 833
IN 70	276039	4	IC MC 14094 BCP C-MOS
bis			
IN 73	276039	4	IC MC 14094 BCP C-MOS
IP 53	238347	3	IC MC 7815
IP 54	280491	1	IC MC 7915 CT
IR 1	279500	7	IC LM 833
IR 2	279500	7	IC LM 833
IR 11	279502	10	IC MC 14051 BCP
IR 12	279502	10	IC MC 14051 BCP
IR 35	279503	2	IC MC 14052 BCP
PB 19	279504	2	Steller 1 kΩ
PB 20	279504	2	Steller 1 kΩ
PB 29	279505	2	Steller 470 Ω
PB 30	279505	2	Steller 470 Ω
RB 49	279506	2	Thermoschalter
RB 50	279506	2	Thermoschalter
SB 67	279507	4	Relais AZ 732
SB 70	279507	4	Relais AZ 732
SR 35	279529	1	Relais
TB 1	279508	4	Transistor BDV 67 D
bis			
TB 4	279508	4	Transistor BDV 67 D
TB 9	279509	4	Transistor BDV 66 D
bis			
TB 12	279509	4	Transistor BDV 66 D
TB 48	244891	8	Transistor BC 547 B
TB 53	244891	8	Transistor BC 547 B
TB 54	244891	8	Transistor BC 547 B
TB 61	244891	8	Transistor BC 547 B
TB 62	244891	8	Transistor BC 547 B
TB 65	224729	2	Transistor BC 327
TB 66	224729	2	Transistor BC 327
TC 7	280964	6	Transistor BC 650 S
TC 8	280964	6	Transistor BC 650 S
TC 13	280964	6	Transistor BC 650 S
TC 14	280964	6	Transistor BC 650 S
TC 53	280964	6	Transistor BC 650 S
TC 54	280964	6	Transistor BC 650 S
TD 14	240782	2	Transistor BC 546 B
bis			
TD 16	240782	2	Transistor BC 546 B

Pos.	Art.-Nr.	Stck	Bezeichnung
TR 35	244891	1	Transistor BC 547 B
TR 41	244891	1	Transistor BC 547 B
TR 51	244715	7	Transistor BC 548 C
TR 52	276032	3	Transistor BC 558 C
TR 53	244715	7	Transistor BC 548 C
TR 54	244715	7	Transistor BC 548 C
TR 55	276032	3	Transistor BC 558 C
TR 56	276032	3	Transistor BC 558 C
TR 57	244715	7	Transistor BC 548 C
bis			
TR 60	244715	7	Transistor BC 548 C
40	279484	1	**Display/Tastenplatte**
DR 63	223906	10	Diode 1 N 4148
DR 64	279521	1	Diode 1 N 4150
DR 65	279496	1	Diode ZPD 5V1
DR 74	223906	10	Diode 1 N 4148
DR 81	223906	10	Diode 1 N 4148
bis			
DR 88	223906	10	Diode 1 N 4148
GR 1	279522	1	Display FV-045
GR 51	279523	6	LED TLHR 6200
bis			
GR 54	279523	6	LED TLHR 6200
GR 79	280970	2	LED TLSR 5601
GR 80	280970	2	LED TLSR 5601
IR 60	279524	1	IC UP HD 44840 A70 HMSC 4
QR 61	279525	1	Keramikfilter 800 kHz
SR 1	276045	29	Schalter
bis			
SR 31	276045	29	Schalter
TR 2	244892	17	Transistor BC 557 B
bis			
TR 18	244892	17	Transistor BC 557 B
TR 51	277937	7	Transistor BC 558
bis			
TR 54	277937	7	Transistor BC 558
TR 66	231062	1	Transistor BC 328
TR 67	238894	1	Transistor BC 338
TR 70	277937	7	Transistor BC 558
TR 76	244715	1	Transistor BC 548 C
TR 79	277937	7	Transistor BC 558
TR 80	277937	7	Transistor BC 558
XR 63	279527	1	Akku LM 2425
50	279473	1	**Standby-Platte**
DP 2	223906	1	Diode 1 N 4148
DP 9	279497	2	Gleichrichter B 80 C 1500
DP 11	279497	2	Gleichrichter B 80 C 1500
DP 12	280969	1	Diode ZPY 10/BZX 85/C10
DR 2	223906	1	Diode 1 N 4148
FP 1	247842	2	Sicherung 2,5 A/250 V T
FP 2	247842	2	Sicherung 2,5 A/250 V T
LP 1	280965	1	Trafo
RP 1	280967	1	Kaltleiter C 883
SP 2	280966	1	Relais 12 V
TP 4	244892	2	Transistor BC 557 B
TP 6	244891	1	Transistor BC 547 B
60	280492	1	**Treiberplatte**
DD 25	279521	2	Diode 1 N 4150
DD 26	249521	2	Diode 1 N 4150
DD 31	249857	1	Diode ZPD 12
PD 14	279520	1	Steller 220 kΩ
PD 38	280968	1	Steller 100 kΩ
TD 1	240782	4	Transistor BC 546 B
TD 3	279515	1	Transistor BF 423
TD 4	262496	3	Transistor BC 556 B
TD 6	262496	3	Transistor BC 556 B
TD 8	262496	3	Transistor BC 556 B
TD 9	279516	1	Transistor BF 870
TD 12	279517	1	Transistor MJE 340
TD 21	279518	1	Transistor MJE 350
TD 24	279519	1	Transistor BF 869
TD 26	240782	4	Transistor BC 546 B
TD 31	240782	4	Transistor BC 546 B
TD 33	240782	4	Transistor BC 546 B
TD 37	240782	4	Transistor BC 546 B
70	279490	1	**IR-Empfänger**
	279491	1	Netzkabel
	279830	1	Bedienungsanleitung CV 440
	279493	1	Faltschachtel
	279494	2	Seitenteil

Änderungen vorbehalten! Subject to change! Sous réserve de modification!